

Mixed Quadratics Questions

Part A. Solve these equations by factorization

1. $x^2 + 5x - 14 = 0$
2. $x^2 - 9x + 14 = 0$
3. $x^2 + 5x - 14 = 0$
4. $x^2 + 20 = 9x$
5. $2x^2 + 5x - 12 = 0$
6. $2x^2 = 5x + 3$
7. $x^2 + 5x - 14 = 0$
8. $2x + 1 = \frac{15}{x}$

Part B. Use the completing the square method to solve for x in the following (give answers to 2dp)

1. $x^2 + 2x - 14 = 0$
2. $x^2 - 6x - 1 = 0$
3. $x^2 + 3x - 7 = 0$
4. $x^2 + 5x - 14 = 0$
5. $2x^2 + 4x - 19 = 0$
6. $2x^2 = 1 - 5x$

Part C. Use the formula to solve for x in the following (give answers to 3sf)

1. $x^2 + 5x - 14 = 0$ (and compare this to Q1 in Part A)
2. $x^2 + 6x + 2 = 0$
3. $2x^2 + x - 3 = 0$
4. $3x^2 = 1 + 6x$
5. $(x + 2)^2 = (1 - 2x)^2$

Part D. Solve for x. Use any method you prefer.

1. $8(2x - 3)(x + 1) = -25$
2. $(2x + 1)(x + 6) + (2x + 1)(x + 4) = (3x + 5)(x + 6)$
3. $8(x - 3)^2 = 200$
4. $4x^2 - 4x - 15 = 0$
5. $2x^2 + 6x + 3 = 0$

Part E. Solve the following problems by setting up an appropriate quadratic equation

1. When you multiply two consecutive odd numbers, the result is 255. What are the numbers?
2. The cost of making x model cars is given by $\$(x^2 + 14x + 116)$. Given a budget of \$356, how many model cars can be made?
3. The sum of the squares of 3 consecutive positive odd numbers is 251. Find the three numbers.
4. The area of a rectangle is 54cm^2 . The rectangle is 3cm longer than the width. Find the perimeter of the rectangle.
5. The hypotenuse of a right-angled triangle is $(2x + 3)\text{cm}$. The other two sides are $(2x - 6)$ and $(x + 6)\text{cm}$. Find x.
6. If the price of a photo-frame is \$40, 30 frames can be sold. If the price is reduced by \$x, 2x more photo frames can be sold. What is the price of a photo-frame that gives a total income of \$1472?
7. A quadratic equation has roots 7 and -2. What is the equation?